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In some deserted pits, thirty or forty feet in depth, and irregular in outline, and an acre more or less in extent, may be found *Woodwardia areolata* and *virginica*, *Dryopteris patens*, and a few clumps of *Osmunda regalis*, with small clover-like fronds, growing in the crevices of the crumbling limestone cliffs.

In a digging along the railroad track, and in a washed-out ravine at one of the mines, *Dryopteris patens* has appeared, and grows vigorously. Both places are damp and well shaded. A miniature cave, a mile to the westward, is filled with a mass of the same fern. There appears to be a spring near for the rocks are always moist.

INVERNESS, FLA.

Ophioglossum Engelmanni in Missouri.

ERNEST J. PALMER

It was several years after I had begun collecting the ferns of Southwest Missouri, and particularly of my own county of Jasper, that I succeeded in adding Engelmann's adder's tongue to my list. Then I found a colony of it growing within half a mile of my home, an illustration of the fact that we frequently go far afield in our search for the strange and beautiful and overlook the wonders close at hand.

The station is at an altitude of about 1,100 feet, on a gently sloping hillside with north exposure, along a little branch near the town of Carterville, Missouri. On thin soil in irregularities of the Mississippian limestone, which here comes to the surface, a few xerophytic plants maintain a somewhat precarious existence amongst the common upland prairie species. The more characteristic of these are *Bouteloua curtipendula*, *Allionia albida*, *Tragia ramosa*, *Malvastrum angustum*, *Sedum*

pulchellum and an *Opuntia*. Amongst these the *Ophioglossum* was growing, but had suffered considerably from the tramping of cattle, from which cause it is likely to be exterminated at no distant date. The plants were for the most part small and stunted, the best specimens being protected by some bushes of *Crataegus* and *Symporicarpos orbiculatus*.

The following year I discovered another locality for this interesting fern, in the northwest part of Jasper County, near the mining camp of Neck City. The plants at this colony were well protected and consequently much more robust and typical. The altitude here is about 1,000 feet. Limestone bluffs 40 or 50 feet high, on the north side of Spring River, form an abrupt escarpment from the upland prairie. On a ledge of the rock a thin layer of residual soil and humus had accumulated, which in wet times is thoroughly saturated by seepage water from the higher levels. Later in the season it becomes very dry; but not before the *Ophioglossum* has run through its rapid season's cycle and become dormant for another year. The ledge has a southern exposure and is without shade. At the time I visited it (May 10, 1910) there were hundreds of fronds, some of them just developing the fertile segment and others already discharging the spores. In a number of plants two stems rose from a single rootstock and in a few cases three. In several specimens the fertile segment was bifid or two pronged. The average height of the plants was 12 to 15 centimeters, about a third of which was the stipe, while the fertile segment did not exceed the sterile by more than three or four centimeters. Whether this becomes much elongated later I cannot say, as I did not again visit the locality. However, the plants were much lower and less slender than in specimens of *O. vulgatum* I have seen. The greatest width of the sterile segments was about 20 to 25 millimeters. The network of secondary veins and the cuspidate tips were quite noticeable.

I am glad to say that this and another near-by station, on Spring River, of this rare fern are not likely to be disturbed, as they are rather inaccessible and are surrounded by rocky waste ground that is of little value for utilitarian purposes.

WEBB CITY, MISSOURI.

Notes on the Pteridophytes of the north shore of Lake Superior—II.

O. E. JENNINGS

In this JOURNAL for June, 1913, the writer gave a list of the pteridophytes collected during the summer of 1912 at various points along the north and northwest shore of Lake Superior, ranging from Fort William in the west to Heron Bay in the east, and extending northward to about twenty miles north of Nepigon. During the summer of 1913, the writer and Mrs. Jennings spent another period of three months in the same general region, but working for the most part in different localities. The pteridophytes collected during this second season have been very kindly worked over by Prof. L. S. Hopkins, and it is thought probably worth while as a further contribution to the known distribution of the pteridophytes of North America to publish a record of this collection also.

LYCOPODIALES

1. LYCOPODIUM LUCIDULUM Michx.

Base of Rabbit Mt., 3 mi. s. e. of Stanley; Maloney's Harbor, Magnet Point, Lake Superior; shore of channel, Porphyry Island, Lake Superior.

2. LYCOPODIUM ANNOTINUM L.

On sand-hills 3 mi. s. e. of Stanley; e. side Loon Lake;